Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-19 (Cancelled)

20. (Previously Presented) A rotor configured to treat waste or recycled material, comprising;

a rotor housing having a center axis and configured to receive a material;

a deflector wall within the rotor housing configured to rotate about the center axis, wherein rotation of the deflector wall decomposes the materials into components, the rotation of the deflector wall causes the material to move in a substantially helical transport path in a first direction; and

a port configured to inject process air into the rotor housing, wherein the air moves in a substantially helical airflow path in a second direction opposite to the first direction.

21. (Currently Amended) The rotor of claim 20, wherein the deflector wall is ~~further comprises:~~ an inner deflector wall, the rotor further comprising: [[; and]]

an outer deflector wall concentric with the inner deflector wall and separated by a gap in which the material moves between the inner and outer deflector walls. ~~therein, wherein at least one of the inner deflector wall or the outer deflector wall rotates about the center axis.~~

22. (Previously Presented) The rotor of claim 21, wherein the outer deflector wall includes a protrusion extending therefrom toward the gap, wherein the material decomposes upon striking the protrusion.

23. (Previously Presented) The rotor of claim 22, wherein the inner deflector wall includes a protrusion extending therefrom toward the gap, wherein the material is decomposed upon striking the protrusion.

24. (Previously Presented) The rotor of claim 23, wherein the protrusion from the outer deflector wall is offset from the protrusion from the inner deflector wall.

25. (Previously Presented) The rotor of claim 20, wherein the material is a composite having a metal component, wherein the metal component is deformed into a substantially sphere-like shape upon being decomposed.

26. (Previously Presented) The rotor of claim 20, wherein the material includes particles entering the rotor housing are between and including 10 mm and 50 mm in size.

27. (Previously Presented) The rotor of claim 20, wherein the first direction of the transport path is downward and the second direction of the airflow path is upward with respect to the rotor housing.

28. (Previously Presented) The rotor of claim 20, wherein rotation of the deflection wall generates a shock wave to decompose the material.

29. (Previously Presented) The rotor of claim 20, wherein the process air expedites removal of the components from within the rotor housing.

30. (Previously Presented) A method for decomposing waste or recycled material comprising:

receiving material in a rotor having a rotor housing;

rotating a deflector wall within the rotor housing about a center axis to decompose the material into components, wherein the material moves through the rotor housing in a substantially helical transport path; and

injecting process air into the rotor housing, wherein the process air flows along a substantially helical airflow path in a direction opposite to the transport path.

31. (Currently Amended) The method of claim 30, wherein the deflector wall is ~~further comprises:~~ an inner deflector wall, the method further comprising: [[; and]]

rotating an outer deflector wall concentric with the inner deflector wall and separated by a gap in which the material moves between the inner and outer deflector walls. ~~therein, wherein at least one of the inner deflector wall or the outer deflector wall rotates about the center axis.~~

32. (Currently Amended) The method of claim [[30]] 31, wherein the outer deflector wall includes a protrusion extending therefrom toward the gap, wherein the material decomposes upon striking the protrusion.

33. (Currently Amended) The method of claim [[31]] 32, wherein the inner deflector wall includes a protrusion extending therefrom toward the gap, wherein the waste materials decompose upon striking the protrusion.

34. (Previously Presented) The method of claim 30, wherein the process air expedites removal of the components from within the rotor housing.

35. (Previously Presented) The method of claim 33, wherein the protrusion from the outer deflector wall is offset from the protrusion from the inner deflector wall.

36. (Previously Presented) The method of claim 30, wherein the material includes a metal component, wherein the metal component is deformed into a substantially sphere-like shape upon being decomposed.

37. (Previously Presented) The method of claim 30, wherein the material includes particles entering the rotor housing are between and including 10 mm and 50 mm in size.

38. (Previously Presented) The method of claim 30, wherein the first direction of the transport path is downward and the second direction of the airflow path is upward with respect to the rotor housing.

39. (Previously Presented) The method of claim 30, wherein rotation of the deflection wall generates a shock wave to decompose the material.

40. (Currently Amended) A system for treating waste or recycled material comprising:

a rotor device including a rotor housing having a center axis and configured to receive a material therein;

an outer deflector wall within the rotor housing;

an inner deflector wall concentric with the outer deflector wall with respect to the center axis to form a gap therebetween, wherein protrusions extending from both of the inner and outer deflector walls extend toward the gap, at least one of the inner or outer deflector walls configured to rotate about the center axis to decompose the material traveling in the gap into components, wherein rotation of the least one of the inner or outer deflector wall moves the material in a substantially helical transport path in a downward direction.

41. (Cancelled)

42. (Previously Presented) The system of claim 40, further comprising a port configured to inject process air into the rotor housing in an upward helical flow path, wherein the process air removes the material components from the rotor housing.